

Applicant: Nestor RODRIGUEZ-AMAYA et al.
Docket No. R.307522
Preliminary Amdt.

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-8. (Canceled)

9. (New) In a high-pressure pump for a fuel injection system of an internal combustion engine, having at least one pump element which has a pump piston driven in a reciprocating motion and defining a pump work chamber, into which work chamber fuel is aspirated from a fuel inlet via an inlet valve in the intake stroke of the pump piston and from which work chamber fuel is positively displaced via an outlet valve into a high-pressure region in the pumping stroke of the pump piston, and the inlet valve and/or the outlet valve having a valve member, which with a sealing face cooperates with a valve seat disposed in a valve housing, and by means of the valve member in the opened state, when the valve member with its sealing face has lifted from the valve seat opens a flow cross section between the valve member and the valve housing, the improvement wherein, in the opened state of the valve member, a region having the smallest flow cross section between the valve member and the valve housing is located downstream, in the flow direction of the fuel flowing through the valve, of the sealing face of the valve member.

10. **(New)** The high-pressure pump as recited in claim 9, wherein the valve housing comprises a first jacket face, inclined relative to the longitudinal axis of the high-pressure pump and surrounding the valve member, which jacket face forms the valve seat, and a second jacket face, adjoining the first jacket face and inclined relative to its longitudinal axis and surrounding the valve member that the angle of inclination of the second jacket face relative to the longitudinal axis being less than the angle of inclination of the first jacket face, the region of the smallest flow cross section being located between the valve member and the second jacket face of the valve housing in the opened state of the valve member.

11. **(New)** The high-pressure pump as recited in claim 10, wherein the first jacket face and/or the second jacket face of the valve housing is embodied at least approximately frustoconically.

12. **(New)** The high-pressure pump as recited in claim 9, wherein the sealing face of the valve member is embodied at least approximately frustoconically and is inclined to the longitudinal axis of the first jacket face preferably by a different angle from the angle by which the first jacket face of the valve housing is inclined relative to its longitudinal axis.

13. **(New)** The high-pressure pump as recited in claim 10, wherein the sealing face of the valve member is embodied at least approximately frustoconically and is inclined to the

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longitudinal axis of the first jacket face preferably by a different angle from the angle by which the first jacket face of the valve housing is inclined relative to its longitudinal axis.

14. **(New)** The high-pressure pump as recited in claim 11, wherein the sealing face of the valve member is embodied at least approximately frustoconically and is inclined to the longitudinal axis of the first jacket face preferably by a different angle from the angle by which the first jacket face of the valve housing is inclined relative to its longitudinal axis.

15. **(New)** The high-pressure pump as recited in claim 10, further comprising an undercut at the transition between the first jacket face and the second jacket face of the valve housing, the undercut having a jacket face extending at least approximately parallel to the longitudinal axis.

16. **(New)** The high-pressure pump as recited in claim 11, further comprising an undercut at the transition between the first jacket face and the second jacket face of the valve housing, the undercut having a jacket face extending at least approximately parallel to the longitudinal axis.

17. **(New)** The high-pressure pump as recited in claim 12, further comprising an undercut at the transition between the first jacket face and the second jacket face of the valve housing, the

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undercut having a jacket face extending at least approximately parallel to the longitudinal axis.

18. **(New)** The high-pressure pump as recited in claim 12, wherein the valve member comprises a shaft and a head of enlarged cross section compared to the shaft, the sealing face being located on the valve member at the transition between the shaft and a head, and a region on the head of the valve member having a cross section that is reduced compared to the rest of the cross section of the head, which region faces the transition between the first jacket face and the second jacket face in the valve housing.

19. **(New)** The high-pressure pump as recited in claim 13, wherein the valve member comprises a shaft and a head of enlarged cross section compared to the shaft, the sealing face being located on the valve member at the transition between the shaft and a head, and a region on the head of the valve member having a cross section that is reduced compared to the rest of the cross section of the head, which region faces the transition between the first jacket face and the second jacket face in the valve housing.

20. **(New)** The high-pressure pump as recited in claim 14, wherein the valve member comprises a shaft and a head of enlarged cross section compared to the shaft, the sealing face being located on the valve member at the transition between the shaft and a head, and a region on the head of the valve member having a cross section that is reduced compared to

the rest of the cross section of the head, which region faces the transition between the first jacket face and the second jacket face in the valve housing.

21. **(New)** The high-pressure pump as recited in claim 15, wherein the valve member comprises a shaft and a head of enlarged cross section compared to the shaft, the sealing face being located on the valve member at the transition between the shaft and a head, and a region on the head of the valve member having a cross section that is reduced compared to the rest of the cross section of the head, which region faces the transition between the first jacket face and the second jacket face in the valve housing.

22. **(New)** The high-pressure pump as recited in claim 9, wherein the valve member is embodied at least approximately spherically; and wherein the sealing face is formed by a region of the surface of the valve member.

23. **(New)** The high-pressure pump as recited in claim 10, wherein the valve member is embodied at least approximately spherically; and wherein the sealing face is formed by a region of the surface of the valve member.

24. **(New)** The high-pressure pump as recited in claim 11, wherein the valve member is embodied at least approximately spherically; and wherein the sealing face is formed by a region of the surface of the valve member.

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25. **(New)** The high-pressure pump as recited in claim 15, wherein the valve member is embodied at least approximately spherically; and wherein the sealing face is formed by a region of the surface of the valve member.

26. **(New)** The high-pressure pump as recited in claim 9, wherein a higher static pressure prevails than in the region of the smallest flow cross section; in the opened state of the valve member in the region of its sealing face and wherein as a result of the pressure acting on the sealing face, a force in the opening direction on the valve member is generated.

27. **(New)** The high-pressure pump as recited in claim 15, wherein a higher static pressure prevails than in the region of the smallest flow cross section; in the opened state of the valve member in the region of its sealing face and wherein as a result of the pressure acting on the sealing face, a force in the opening direction on the valve member is generated.